

WHAT IS CLAIMED IS:

- 5 1. A diffractive optical element comprising:
a first layer having a relief type grating;
a second layer having a relief type grating; and
a third layer having a relief type grating;
said first, second and third layers being formed
of different materials;
said diffractive optical element having at least
three diffraction optical parts in the boundary areas
10 of the respective layers;
said diffractive optical element being set so that
at three wavelengths, the diffraction efficiency
thereof for diffracted light of a predetermined order
may be maximum, said three wavelengths being
15 substantially coincident with the main wavelengths of
the three primary colors.
- 20 2. The diffractive optical element of Claim 1,
wherein at least one air layer is included among said
first, second and third layers.
- 25 3. The diffractive optical element of Claim 1,
wherein said three wavelengths are 450 ± 20 nm, $550 \pm$
 20 nm and 650 ± 20 nm.
4. An optical system for forming an image on a
photosensitive surface, comprising:

a diffractive optical element comprising:
a first layer having a relief type grating;
a second layer having a relief type grating; and
a third layer having a relief type grating;

5 said first, second and third layers being formed
of different materials;

 said diffractive optical element having at least
three diffraction optical parts in the boundary areas
of the respective layers;

10 said diffractive optical element being set so that
at three wavelengths, the diffraction efficiency
thereof may be maximum, said three wavelengths being
substantially coincident with the main wavelengths of
the three primary colors to which the sensitivity of
15 said photosensitive surface is high.

5. An optical system for illuminating an original
picture with light from a light source, and projecting
the image of the illuminated original picture, provided
20 with:

a diffractive optical element comprising:
a first layer having a relief type grating;
a second layer having a relief type grating; and
a third layer having a relief type grating;

25 said first, second and third layers being formed
of different materials;

 said diffractive optical element having at least

three diffraction optical parts in the boundary areas
of the respective layers;

said diffractive optical element being set so that at three wavelengths, the diffraction efficiency thereof may be maximum, said three wavelengths being substantially coincident with the main wavelengths of the three primary colors included in the light from said light source.

[illegible]

addc27